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METHOD FOR AFFORDING A MARKET SPACE INTERFACE BETWEEN A PLURALITY OF MANUFACTURERS AND SERVICE PROVIDERS AND INSTALLATION MANAGEMENT VIA A MARKET SPACE INTERFACE

PROCEDE DE MISE A DISPOSITION D'UNE INTERFACE D'ESPACE DE MARCHÉ ENTRE UNE PLURALITE DE FABRICANTS ET DES FOURNISSEURS DE SERVICES ET GESTION D'UNE INSTALLATION VIA UNE INTERFACE D'ESPACE DE MARCHÉ

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English Abstract

French Abstract

On décrit un système, un procédé et un article manufacture qui constituent une structure de chaîne d'approvisionnement fondée sur le réseau. L'installation d'un service est gérée au moyen d'un réseau. La demande et l'approvisionnement des offres de fabricant sont planifiées au moyen du réseau et les commandes relatives aux offres du fabricant sont également gérées au moyen du réseau. Le réseau est également utilisé pour gérer les actifs sur le réseau, y compris pour effectuer la maintenance et le service pour les actifs de réseau au moyen du réseau.

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## Detailed Description

### METHOD FOR AFFORDING A MARKET SPACE INTERFACE BETWEEN A PLURALITY OF MANUFACTURERS AND SERVICE PROVIDERS AND INSTALLATION MANAGEMENT VIA A MARKET SPACE INTERFACE FIELD OF THE INVENTION

The present invention relates to e-Commerce-based supply chains and more particularly to affording market space interface between a plurality of manufacturers and service providers in a network-based supply chain environment.

### BACKGROUND OF THE INVENTION

The ability to quickly, easily and efficiently communicate has always been a critical component, if not a necessity, for successful business operations. Today, as the global economy continues to expand, the ability to communicate is even more important. In partial response to these demands, sophisticated telecommunications equipment has been developed that permits users to quickly and easily place, receive, transfer and switch telephone calls as well as provide advanced features such as call accounting and voice messaging functionality. As these features have become widely available in local telecommunications equipment, such as private branch exchange (PBX)

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telephone switches, central offices, key and hybrid telephone systems (small telecommunications switches), call accounting systems, voice messaging systems, computer telephony interface (CTI) devices, automatic call distribution (ACD) devices, internet servers, etc., the demand for and installation of these systems has continued to expand. Often, a vast number of sites have layered or "integrated" two or more of the aforementioned devices and rarely are these different devices using the same operating system or of the same brand. More often, these differing devices include a mixture of operating systems and brands.

Such a mix of advanced telecommunications equipment, however, still typically relies upon a significant amount of manual human interaction to install, setup, operate, modify and maintain.

Specifically, when a new telephone switch such as a PBX is to be installed at a facility, not only must the physical equipment itself be installed, but the equipment must be configured and programmed to operate as desired by the users of the facility. In fact, as more and more advanced features have become available in the equipment, the burden on the equipment installer to

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initially setup and configure these features for the specific needs of the end user and the burden on the technician in maintaining and modifying the equipment, the associated cable records for the equipment, and cable and service activities, has also increased.

When a telephone switch is accompanied by other telecommunications equipment, such as voice messaging systems, call accounting systems, CTI devices, wireless communication servers, or ACD devices, installation inconveniences are still further multiplied. Specifically, many of these ancillary pieces of equipment require additional entry of user information that is duplicative of information already entered into the main telephone switching equipment. In such case, not only must a technician program the main telecommunications switch, but additional time (and money) must be spent for programming ancillary equipment with similar information. Typically, these systems must be perfectly synchronized with each other or problems will occur. As a result, the total cost of the installation is greatly increased and data entry error rates are greatly increased.

To further complicate the installation and management of this equipment, each discrete change to one component of a telecommunications system often requires additional, similar changes to several other components. Furthermore, these additional changes typically must be done in a 'file order and, since the operating system design of each of the telecommunications devices

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often changes from manufacturer to manufacturer and from device to device, by using an entirely different command structure for each different component. Therefore, when done manually, a technician must remember different command structures for each of the devices that require programming and also must remember the order in which the changes should be made and further may require different terminals, passwords, procedures, software, etc. Thus, a highly skilled technician having familiarity with all of the various types of equipment that make up the telecommunications system must perform these changes, or as is more common, multiple technicians are required. Clearly, with even a limited number of devices that require installation, maintenance, or programming, the likelihood of an error is greatly increased.

Since modem telecommunications equipment provides substantial flexibility in programming to accommodate varying preferences of different users, it is often necessary to begin the installation of such equipment by surveying users as to their desires and preferences so that these can be accurately reflected through programming of the equipment. This is typically done by distributing a questionnaire to each user to receive information sufficient to allow the equipment to be properly configured. Thus, not only is there a substantial time commitment needed to review and enter the information received on such questionnaires into the equipment, but significant effort

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on the part of each and every user is also required to complete the questionnaires. Typically, collection of this data and entry of it must wait until the system is installed, while in the present invention described below, this information can be stored externally, checked for omissions, checked for errors or duplications and processed months in advance.

Such disadvantages are particularly highlighted when an outdated PBX or central office system is replaced with an improved system, or a change is made in a present system. In such case each user is typically surveyed as to their preferences, as above, and this information is manually reentered after installation of the improved PBX or central office system. Thus, since equipment upgrades impact each and every user in a facility, a significant devotion of resources is required.

As a result, the benefits of advanced features provided by improved telecommunications equipment often does not outweigh the installation costs and thus many organizations either do not upgrade their equipment, or delay such upgrades as long as possible.

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#### SUMMARY OF THE INVENTION

A system, method and article of manufacture are provided for affording a network-based supply chain framework. Installation of a service is managed utilizing a network. Demand and supply of manufacturer offerings are planned utilizing the network and orders for the manufacturer offerings are also managed utilizing the network. The network is also utilized to manage network assets including providing maintenance and

service for the network assets utilizing the network.

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#### DESCRIPTION OF THE DRAWINGS

The foregoing and other objects, aspects and advantages are better understood from the following detailed description of a preferred embodiment of the invention with reference to the drawings, in which.

Figure 1 is a schematic diagram of a hardware implementation of one embodiment of the present invention;

Figure 2 illustrates an embodiment of a system for combined industry supply management between one or multiple manufacturers and one or many service providers and/or vendors and/or resellers;

Figure 3 is a flowchart for a process for affording a network-based supply chain framework in

accordance with an embodiment of the present invention;

Figure 4 is a chart illustrating the relations between benefit areas and components of the eCommerce Market Space in accordance with an embodiment of the present invention; Figure 5 is a schematic illustration of the relationship between areas of core competence of both operators and manufacturers for creating an environment for new business relationships in

accordance with an embodiment of the present invention;

Figure 6 illustrates some of the components in the eCommerce Market Space and illustrative

capabilities of the components;

Figure 7 is a flowchart illustrating a methodology for installation management utilizing a

network in accordance with an embodiment of the present invention;

Figure 8 is a flowchart depicting a process for demand and supply planning utilizing a network; Figure 9 illustrates a flowchart for a methodology for managing orders in a network-based supply chain in accordance with an embodiment of the present invention;

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Figure 10 illustrates a flowchart for a process for managing assets in a network-based supply

chain in accordance with an embodiment of the present invention;

Figure 11 illustrates a flowchart for a methodology 1100 for providing maintenance and service in a network-based supply chain in accordance with an embodiment of the present invention; Figure 12 is a block diagram of an exemplary telecommunications system in accordance with a preferred embodiment;

Figure 13 shows a block diagram of the Network Data Management in accordance with a

preferred embodiment;

Figure 14 is a flowchart illustrating a Network Data Management process in accordance with a

preferred embodiment;

Figure 15 shows a block diagram of the Customer Interface Management Process in accordance

with a preferred embodiment;

Figure 16 is a flowchart illustrating a Customer Interface Management Process in accordance

with a preferred embodiment;

Figure 17 shows a block diagram of the Customer Quality of Service Management Process in

accordance with a preferred embodiment;

Figure 18 is a flowchart illustrating a Customer Quality of Service

Management Process in accordance with a preferred embodiment;  
Figure 19 shows a block diagram of the Service Quality Management in accordance with a preferred embodiment;  
Figure 20 is a flowchart illustrating a Service Quality Management Process in accordance with a preferred embodiment;  
Figure 21 shows a block diagram of the Problem Handling Process in accordance with a preferred embodiment;

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Figure 22 is a flowchart illustrating a Problem Handling Management Process in accordance with a preferred embodiment;  
Figure 23 shows a block diagram of the Rating and Discounting Process in accordance with a preferred embodiment;  
Figure 24 is a flowchart illustrating Rating and Discounting Process in accordance with a preferred embodiment;  
Figure 25 shows a block diagram of the Invoice and Collections Process in accordance with a preferred embodiment;  
Figure 26 is a flowchart illustrating an Invoice and Collections Process in accordance with a preferred embodiment;  
Figure 27 is a flowchart showing illustrating media communication over a hybrid network in accordance with a preferred embodiment;  
Figure 28 is a block diagram of an exemplary computer system in accordance with a preferred embodiment;  
Figure 29 illustrates the CDR and PNR call record formats in accordance with a preferred embodiment;  
Figures 30 and 31 collectively illustrate the ECDR and EPNR call record formats in accordance with a preferred embodiment;  
Figure 32 illustrates the OSR and POSR call record formats in accordance with a preferred embodiment;  
Figures 33 and 34 collectively illustrate the EOSR and EPOSR call record formats in accordance with a preferred embodiment;  
Figure 35 illustrates the SER call record format in accordance with a preferred embodiment;

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Figures 36 and 37 are control flow diagrams illustrating the conditions under which a switch uses the expanded record format in accordance with a preferred embodiment;  
Figure 38 is a control flow diagram illustrating the Change Time command in accordance with a preferred embodiment;  
Figure 39 is a control flow diagram illustrating the Change Daylight Savings Time command in accordance with a preferred embodiment;  
Figure 40 is a control flow diagram illustrating the Network Call Identifier (NCID) switch call processing in accordance with a preferred embodiment;

Figure 41 is a control flow diagram illustrating the processing of a received Network Call Identifier in accordance with a preferred embodiment;  
 Figure 42 is a control flow diagram illustrating the generation of a Network Call Identifier in accordance with a preferred embodiment;  
 Figure 43 is a control flow diagram illustrating the addition of a Network Call Identifier to a call record in accordance with a preferred embodiment; and  
 Figure 44 is a control flow diagram illustrating the transport of a call in accordance with a preferred embodiment;  
 Figure 45 is a flowchart showing a Fault Management Process in accordance with a preferred embodiment of the present invention;  
 Figure 46 is a block diagram showing a Fault Management component in accordance with a preferred embodiment of the present invention;  
 Figure 47 is a flowchart showing a Proactive Threshold Management Process in accordance with a preferred embodiment of the present invention;  
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 Figure 48 is a flowchart showing a Network Sensing Process in accordance with one embodiment of the present invention;  
 Figure 49 is a flowchart showing an Element Management Process in accordance with a preferred embodiment of the present invention;  
 Figure 50 is a flowchart showing a three tiered customer support process in accordance with a preferred embodiment of the present invention;  
 Figure 51 is a flowchart showing an integrated IP telephony process in accordance with a preferred embodiment of the present invention; and  
 Figure 52 is a flowchart showing a Data Mining Process in accordance with a preferred embodiment of the present invention.

Figure 53 is a block diagram of a Web Architecture Framework in accordance with one embodiment of the present invention;  
 Figure 54 is a flowchart illustrating the commerce-related web application services in accordance with one embodiment of the present invention;  
 Figure 55 is an illustration of one embodiment of the present invention for facilitating a virtual shopping transaction;  
 Figure 56 is an illustration of one embodiment of the present invention for facilitating a virtual shopping transaction by comparing different products and services;  
 Figure 57 is an illustration of one embodiment of the present invention for creating a hierarchy of the features of the items selected in accordance with the customer's profile; Figure 58 is an illustration of one embodiment of the present invention for facilitating a virtual shopping transaction by ascertaining needs of a user;

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Figure 59 is an illustration of one embodiment of the present invention for facilitating a virtual shopping transaction by generating a solution based on the requirements of the user; Figure 60 is an illustration of one embodiment of the present invention for allowing a user to customize an item for purchase in a virtual shopping environment;

Figure 61 is an illustration of one embodiment of the present invention for advertising in a virtual shopping environment;

Figure 62 is an illustration of one embodiment of the present invention for advertising in a virtual shopping environment;

Figure 63 is an illustration of yet another embodiment of the present invention; Figure 64 is an illustration of one embodiment of the present invention for automatically generating a contract between an owner of software and a user of the software; Figure 65 is an illustration of one embodiment of the present invention for automatically generating a contract between an owner of software and a user of the software Figure 66 is a flowchart illustrating the content channels-related web application services in

accordance with one embodiment of the present invention-,

Figure 67 is a flowchart illustrating the customer relationship management-related web application services in accordance with one embodiment of the present invention; Figure 68 is a flowchart illustrating a profile management service of the customer relationship management-related web application services in accordance with one embodiment of the present invention;

Figure 69 is a flowchart illustrating a profile management service of the customer relationship management-related web application services in accordance with one embodiment of the present invention;

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Figure 70 is a flowchart illustrating the content management and publishing-related web application services in accordance with one embodiment of the present invention-, Figure 71 is a flowchart illustrating the education-related web application services in accordance with one embodiment of the present invention;

Figure 72 is a flowchart illustrating one manner of generating an educational curriculum in the education-related web application services in accordance with one embodiment of the present invention;

Figure 73 is a flowchart illustrating one manner of generating an educational curriculum in the education-related web application services in accordance with one embodiment of the present invention;

Figure 74 is a flowchart illustrating the web customer-related web application services in accordance with one embodiment of the present invention;

Figure 75 is a flowchart illustrating one component of the web customer-related web application

services in accordance with one embodiment of the present invention;

Figure 76 is a flowchart illustrating the security services in accordance with one embodiment of the present invention;

Figure 77 is a flowchart illustrating the network services in accordance with one embodiment of the present invention;

Figure 78 is a flowchart illustrating the internet services in accordance with one embodiment of the present invention;

Figure 79 is a flowchart illustrating the client services in accordance with one embodiment of the present invention;

Figure 80 is a flowchart illustrating the data services in accordance with one embodiment of the

present invention;

Figure 81 is a flowchart illustrating the integration capabilities in accordance with one

embodiment of the present invention;

Figure 82 is a flowchart illustrating the miscellaneous services in accordance with one

embodiment of the present invention;

Figure 83 is a flowchart illustrating the directory services in accordance with one embodiment of

the present invention-,

Figure 84 is a flowchart illustrating the management and operations services in accordance with

one embodiment of the present invention; and

Figure 85 is a flowchart illustrating the web developer services in accordance with one embodiment of the present invention.

Figure 86 is a flow diagram depicting considerations to be taken into consideration when

identifying the core technologies to be used in an architecture;

Figure 87 is a chart that can be utilized to determine whether to use Netcentric technology-, Figure 88 is a chart that can be utilized to

determine whether to use Client Server technology; Figure 89 is a chart that can be utilized to determine whether to use Host technology; Figure

90 illustrates an eCommerce Application Framework in a Development Architecture

Framework;

Figure 91 illustrates the relationship between the eCommerce Application Framework, possible eCommerce Selling Models, enabling technology, and

enabling eCommerce Software Packages; Figure 92 illustrates a flowchart for a method for automated performance of services on a

network in accordance with an embodiment of the present invention;

Figure 93 shows an agent of the eCommerce Application Framework in accordance with one

embodiment of the present invention;

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Figure 94 illustrates a flowchart for a method for suggesting products over a network in

accordance with an embodiment of the present invention;

Figure 95 illustrates the merchandising component of the eCommerce Application Framework of

the present invention;

Figure 96 illustrates a flowchart for a method for interacting with a user over a network for personalizing a website in accordance with an

embodiment of the present invention; Figure 97 depicts the Relationship Management section of the eCommerce Application

Framework in accordance with one embodiment of the present invention;

Figure 98 illustrates a conceptual personalization architecture for implementing the Relationship

Management section of the eCommerce Application Framework;

Figure 99 illustrates a simple personalization process;

Figure 100 is a graphical depiction of extents of personalization;

Figure 101 illustrates a content catalog that can be used to manage an enterprise's content; Figure 102 illustrates an exemplary template with

three Dynamic Content Areas (DCAs) embedded within the template in accordance with a method of associating a rule and content to

an interaction,

Figure 103 depicts a SHARE (Selection, Acquisition, Retention, and Extension) customer relationship model which addresses the changes in a

shift to interactive marketing; Figure 104 illustrates a flowchart for a method for administrating an e-Commerce system on a



network in accordance with an embodiment of the present invention;  
Figure 105 illustrates components of the maintenance and administration portion of the of the eCommerce Application Framework in accordance with one embodiment of the present invention;

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Figure 106 illustrates the Order Processing portion of the eCommerce Application Framework of the present invention;

Figure 107 illustrates a flowchart for a method for completing a transaction over a network in accordance with an embodiment of the present invention;

Figure 108 depicts an example flow of business capabilities needed for complete order

processing on an eCommerce implementation;

Figure 109 illustrates a flowchart for a method for electronically serving a customer over a

network in accordance with an embodiment of the present invention;

Figure 110 illustrates key customer services of the Customer Services portion of the eCommerce

Application Framework;

Figure 111 illustrates the Security component of the eCommerce Application Framework in

accordance with one embodiment of the present invention;

Figure 112 illustrates a flowchart for a method for ensuring security of an e-Commerce system on

a network in accordance with an embodiment of the present invention;

Figure 113 shows a sample architecture in an online advertising scenario;

Figure 114 illustrates an exemplary security architecture in an online advertising scenario; Figure 115 depicts a sample architecture providing direct network access to several of customers in order to share specifications, distribute engineering designs, and collaborate on works in

progress;

Figure 116 depicts another exemplary Security Architecture in the scenario of Figure 115; Figure 117 shows a sample architecture in an interactive customer support scenario; Figure 118 illustrates an exemplary security architecture in a customer support scenario;

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Figure 119 depicts a sample architecture in an online banking scenario; Figure 120 shows an exemplary security architecture in an online banking scenario; Figure 121 illustrates a sample architecture in an online shopping scenario; Figure 122 shows an exemplary security architecture in an online shopping scenario; Figure 123 illustrates a flowchart for a method for manipulating data about a customer in an eCommerce environment in accordance with an embodiment of the present invention; Figure 124 illustrates the Decision Support component of the eCommerce Application Framework in accordance with one embodiment of the present invention; Figure 125 illustrates the Integration component of the eCommerce Application Framework in

accordance with one embodiment of the present invention; and

Figure 126 illustrates a flowchart for a method for integrating an e-Commerce component into an existing framework of an enterprise in accordance with an embodiment of the present invention.

Figure 127 is a representation of a bandwidth market in accordance with one embodiment of the present invention;

Figure 128 is a flowchart illustrating a contract negotiation in accordance with one embodiment

of the present invention;

Figure 129 is a flowchart depicting a method for automatically identifying an amount of unused bandwidth of a user;

Figure 130 is a flowchart illustrating another method of identifying the amount of bandwidth of a user;

Figure 131 is a flowchart illustrating a method for exchanging money for bandwidth;

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Figure 132 is an illustration a summary of a contract negotiation process; Figure 133 is an illustration of a more detailed contract negotiation process; Figure 134 is a flow chart illustrating a method of performing clearing and settlement functions in a bandwidth market environment;

Figure 135 illustrates in overview a system arrangement for implementing the over the counter

(or other) bandwidth market system of the instant invention;

Figure 136 is a flow chart of data processing for qualifying for execution of an order

communicated from a branch order entry clerk or account executive;

Figure 137 illustrates data processing for executing and accounting for orders that have been qualified for execution by the order qualifying

data processing of Figure 136; Figure 138 is the left portion of a flow chart for the data processing of block 13714 of Figure 137 for updating the inventory cost (average price per unit of bandwidth  $AVCST(BWTH)$ ) of the bandwidth  $BWTH$  and the running profit  $PR(BWTH)$  realized from the execution of each trade; Figure 139 is the right portion of a flow chart for the data processing of block 13714 of Figure 137 for updating the inventory cost (average price per unit of bandwidth  $AVCST(BWTH)$ ) of the bandwidth  $BWTH$  and the running profit  $PR(BWTH)$  realized from the execution of each trade; Figure 140 is a flow chart illustrating data processing upon receipt of a new market maker quotation from the bandwidth market system;

Figure 141 is a block diagram of a bill pay system relying on postal mailed payments;

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Figure 142 is a block diagram of a bill pay system wherein consumers pay bills using a bill pay

service bureau which has the consumers as customers;

Figure 143 is a block diagram of a bill pay system where billers initiate automatic debits from

consumers' bank accounts; and

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Figure 144 is a flow chart illustrating an open market environment for electronic content.

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#### DESCRIPTION OF THE PREFERRED EMBODIMENTS

Figure I is a schematic diagram of one possible hardware implementation by which the present invention may be carried out. As shown, the present invention may be practiced in the context of a personal computer such as an E3M compatible personal computer, Apple Macintosh computer or UNIX based workstation.

A representative hardware environment is depicted in Figure 1, which illustrates a typical hardware configuration of a workstation in accordance with one embodiment having a central processing unit 110, such as a microprocessor, and a number of other units interconnected via a system bus 112.